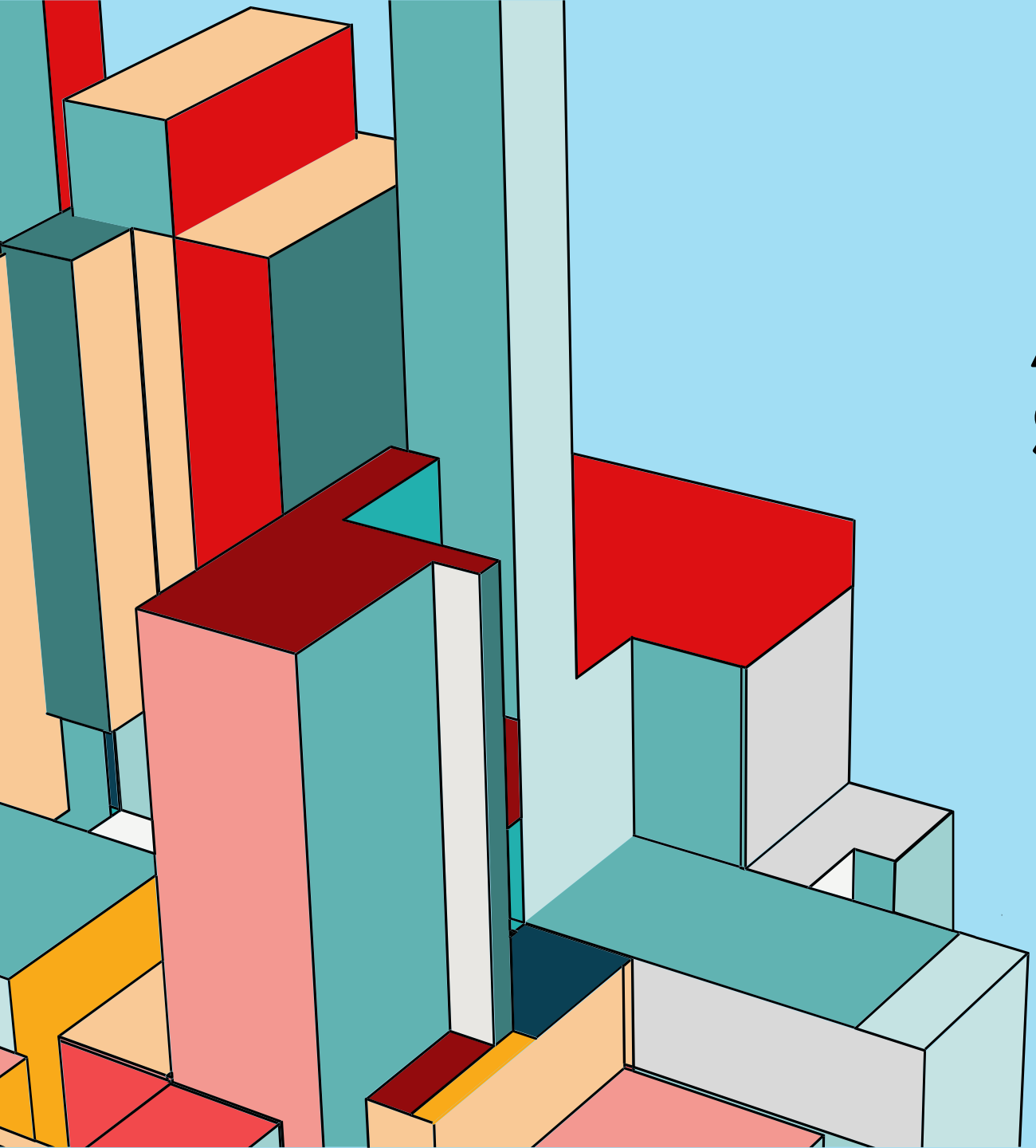


APPLIED DATA SCIENCE PROJECT

ENT-ICIPATE

Politecnico di Torino

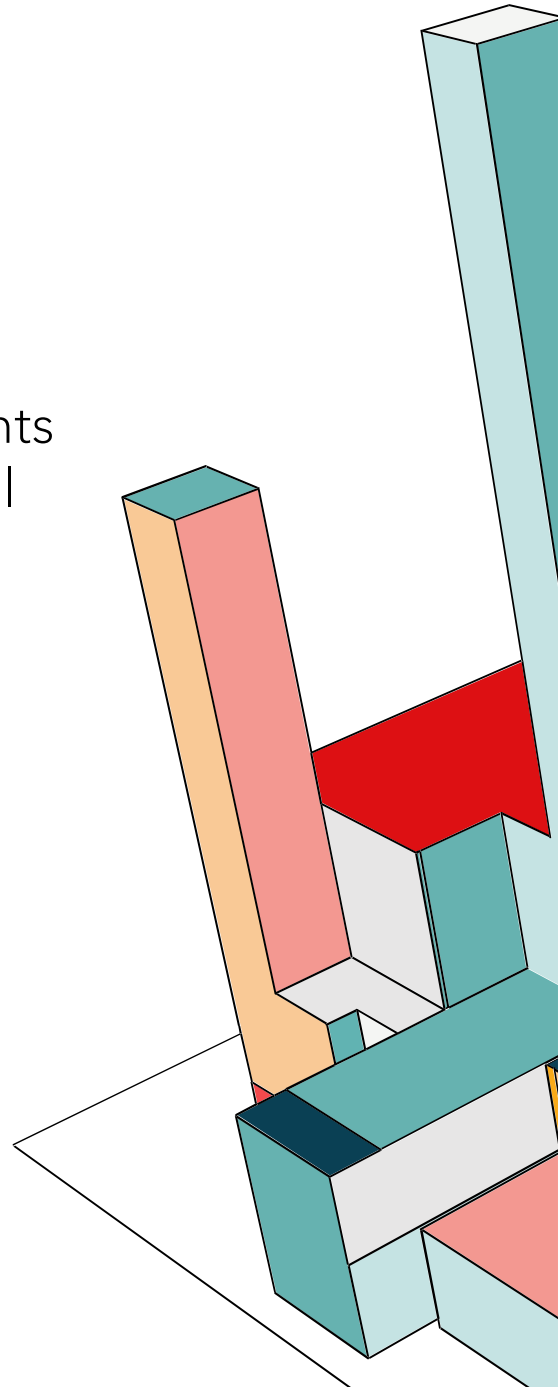
FONDAZIONE links PASSION FOR INNOVATION

ellis European Laboratory for Learning and Intelligent Systems

VALUE-DRIVEN PROJECT

- Timely and accurate prediction of post-surgeries complications for patients can be crucial to ensure their safety and recovery. This is especially critical for oncology patients, who are often more fragile and at higher risk. Anticipating complications enables doctors to deliver more personalized and effective care, while helping hospitals optimize resource allocation.

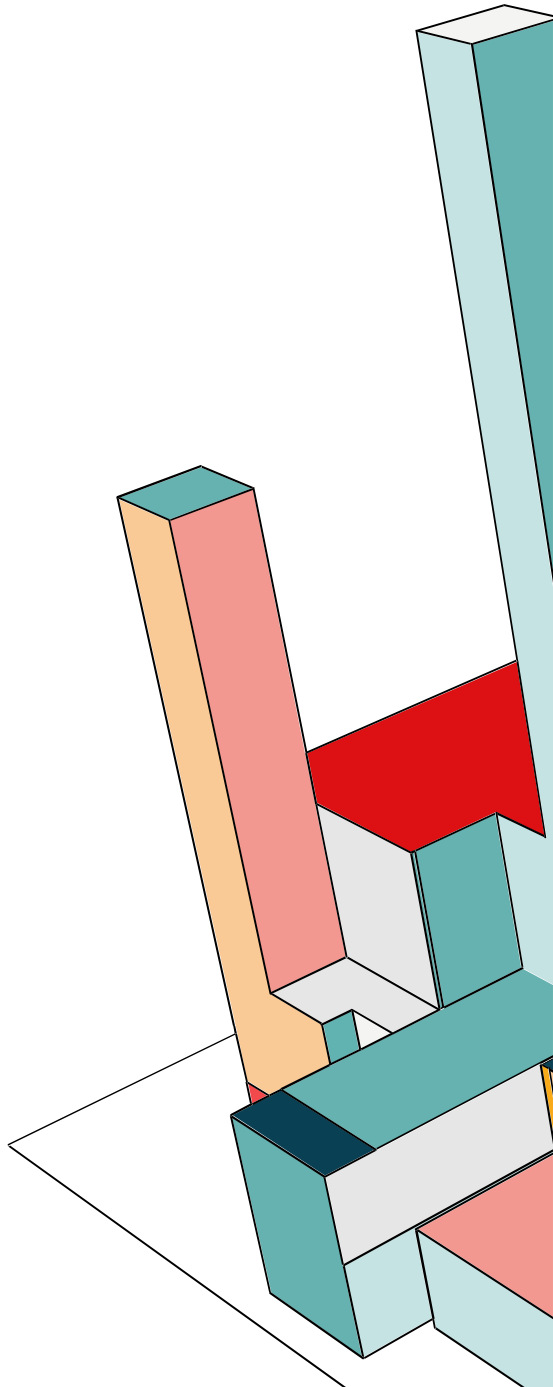
- The project is supervised by **LINKS Foundation** in collaboration with the ENT Ward of Molinette Hospital



DATA

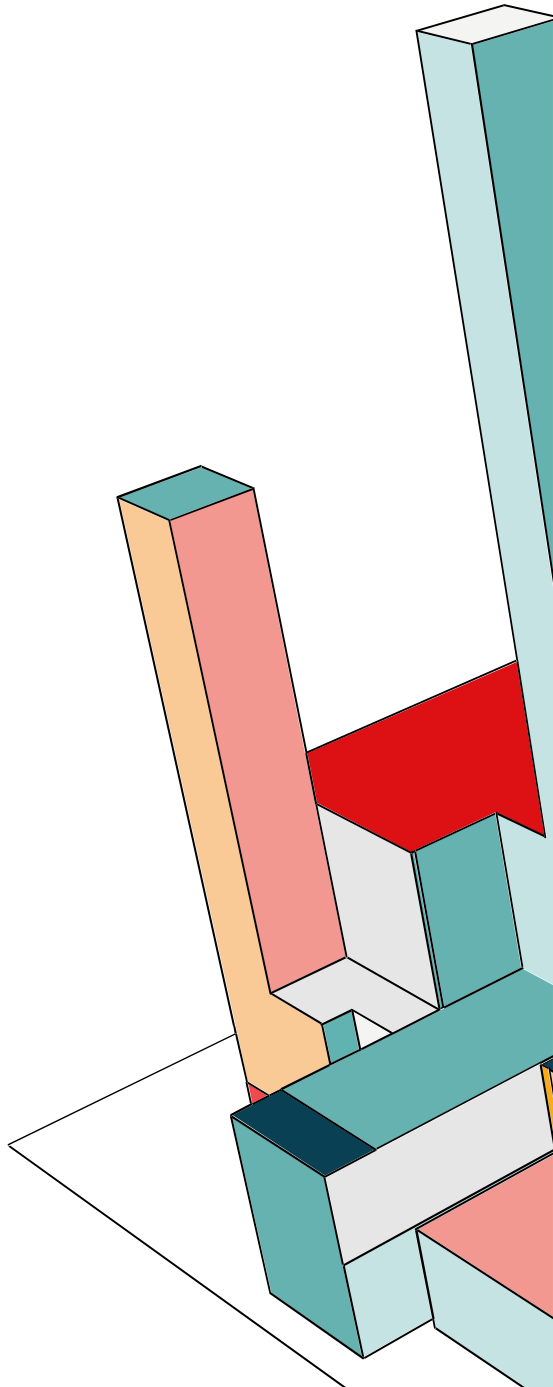
- Data from 550+ patients that underwent a tumor removal surgery in Ear-Nose-Throat (ENT) area from 2002 to 2023, containing their clinical and surgical records together with information on pre-surgery comorbidities and post-surgery complications.

- Data has been manually collected by medical doctors in ENT ward of Molinette hospital. The use of this data for research purposes has been approved by the hospital's Ethics Committee.

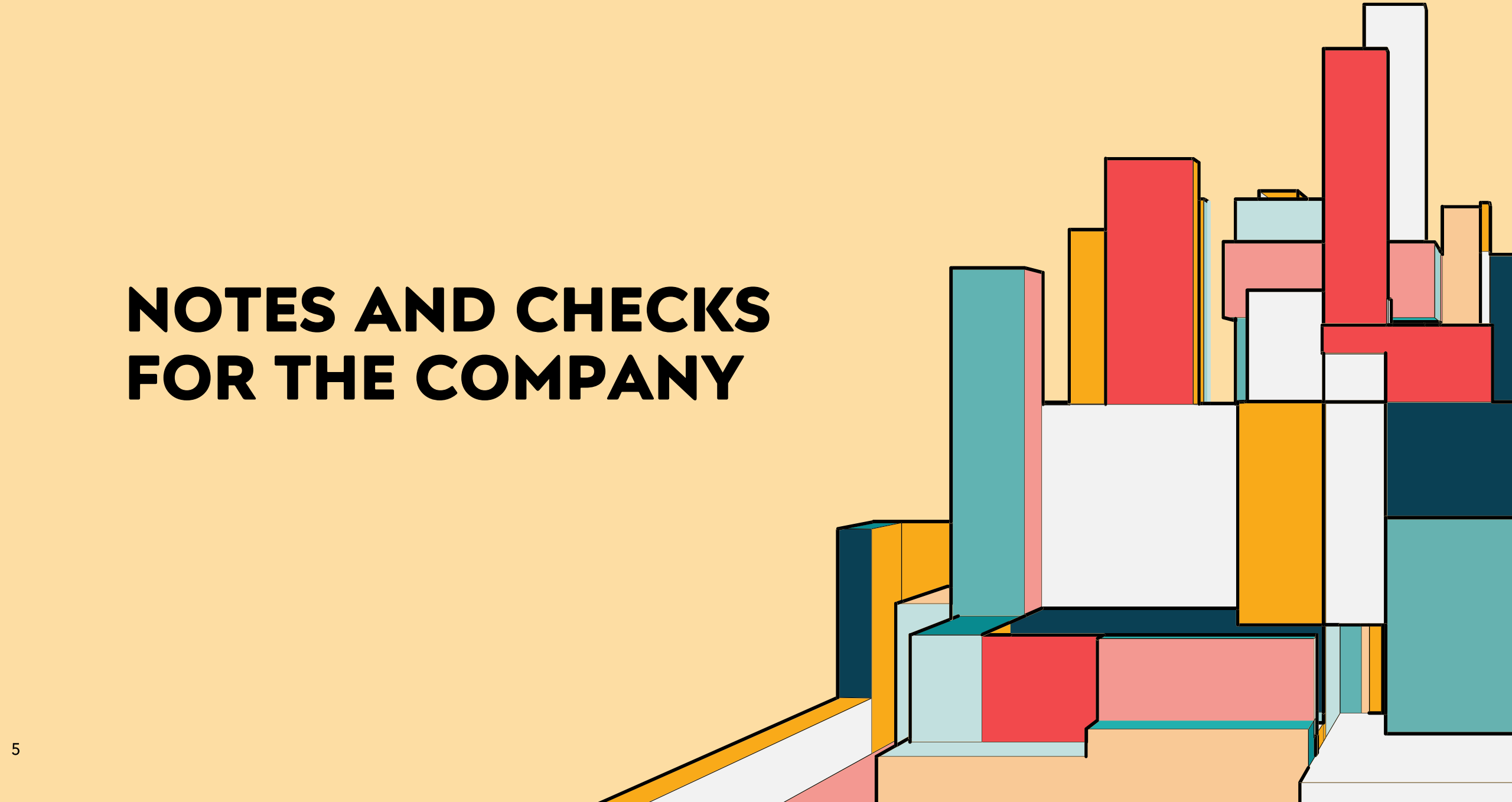


TASK

- The main task of this project is the prediction of post-surgical complications and hospitalization time for patients that underwent a tumor removal surgery.
- This task will require a first data exploration phase, possibly with a feature selection process, followed by the training and validation of the machine learning model(s) for the prediction task.
- The specific approaches (supervised/unsupervised) and models applied in this task will be decided along the course of the project, possibly with a comparison study between the different approaches.



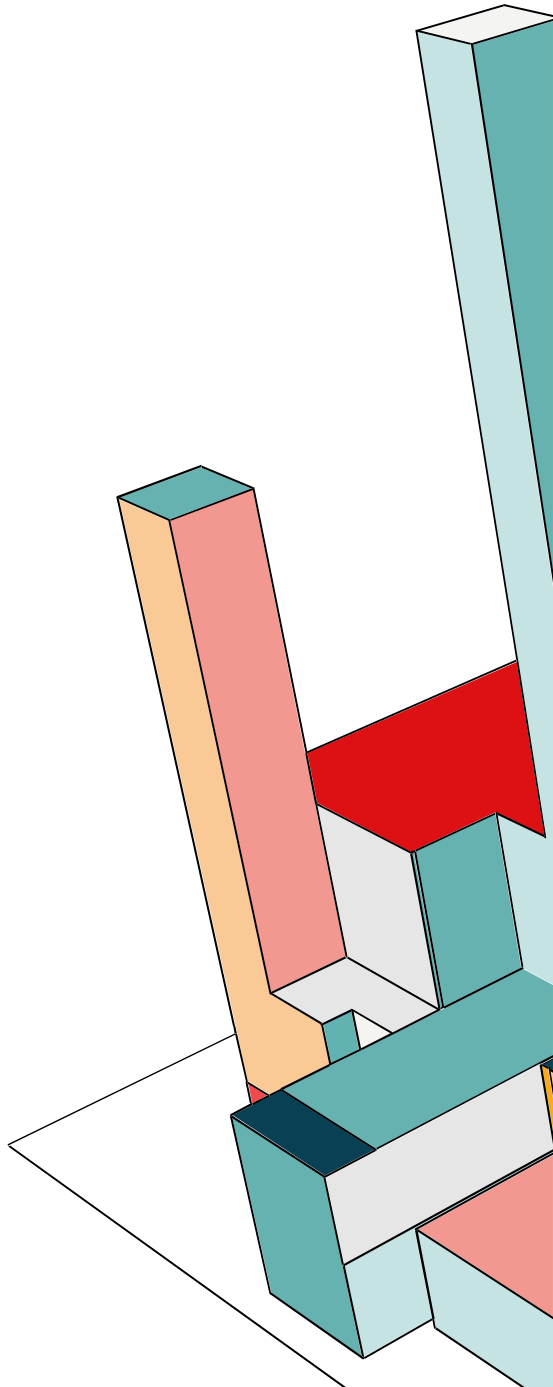
NOTES AND CHECKS FOR THE COMPANY

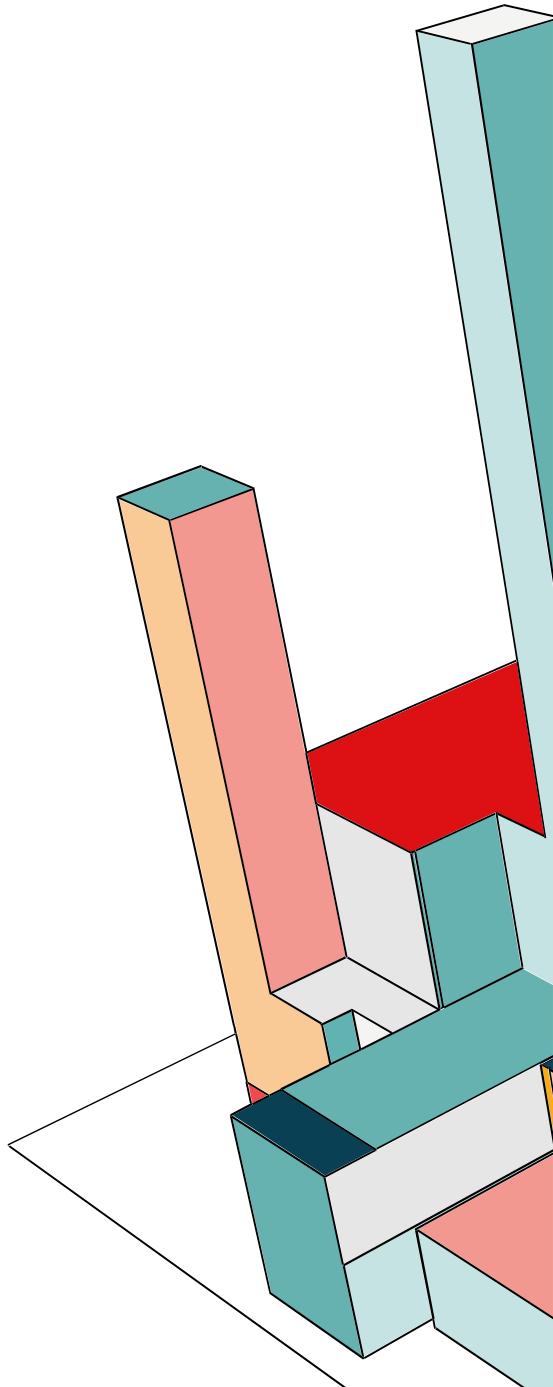


LIGHT MENTORING

- Mentors
  - Angelica Urbanelli (angelica.urbanelli@linksfoundation.com)
  - Sara De Luca (sara.deluca@linksfoundation.com)

- **Weekly one-hour calls** with students for the whole duration of the semester
- Feel free to reach out via **Teams** or **email** for any questions or doubts
- Dataset provided by the company



POLICY

- Both project descriptions and implementations will be part of a repository group published on GitHub
- The repositories will be public
- The data provided **must not be shared** and/or **published**